Claims

I claim;

1. An electric motor drive assembly comprising:

a) at least two electric motors, having incrementally increasing diameters, mounted in an integrated concentric manner along a common rotational axis, wherein the rotating stator of each internally mounted motor is removably coupled to the rotor of the incrementally larger motor in said assembly; and

b) at least one set of electrically conductive end bearings spanning the annular space between each consecutive motor casing in said assembly.

2. The electric motor drive assembly of claim 1 wherein said electric motors are selected from the group consisting of AC motors, DC motors, brushless DC motors, servo motors, brushed DC servo motors, brushless AC servo motors, stepper motors, and linear motors.

3. The electric motor drive assembly of claim 1 wherein each said set of electrically conductive end bearings communicates current to one predetermined stator in said drive assembly.

4. The electric motor drive assembly of claim 1 wherein the electric power source to each motor is selected from at least one of the group consisting of fixed frequency electrical utility mains, fixed voltage DC power, variable frequency AC power source, and variable voltage DC power source.

5. A method for varying the output speed of a concentric multiple electric motor drive comprising:

a) energizing the innermost motor through a set of electrically conductive end bearings to rotate the output shaft at a first nominal speed,

b) energizing the second innermost motor through a set of electrically conductive end bearings to rotate the stator of said innermost motor at the speed of the second innermost motor thereby rotating said output shaft at the sum of both motor speeds,

c) energizing each incrementally larger motor in said motor drive through a set of electrically conductive end bearings thereby incrementally adding speed and horsepower to said output shaft.

6. The method of claim 5 wherein said electric motors are selected from the group consisting of AC motors, DC motors, brushless DC motors, servo motors, brushed DC servo motors, brushless AC servo motors, stepper motors, and linear motors.

7. The method of claim 5 wherein each said set of electrically conductive end bearings communicates current to one predetermined stator in said drive assembly.

8. The electric motor drive assembly of claim 1 wherein the electric power source to each motor is selected from at least one of the group consisting of fixed frequency electrical utility mains, fixed voltage DC power, variable frequency AC power source, and variable voltage DC power source.